

Chapter 6

Linear Tomographic Units

Introduction

1. Conventional tomography is used in cases where anatomical information is desired in a specific plane of interest. Through the motion of the x-ray tube and the film cassette about a fulcrum, structures not in the object plane are blurred more than those in the plane of interest. Examples of tomography include: inner ear, cervical spine and long bone fractures.

2. The instructions in appendix E are based on the most commonly found type of tomography used, *linear motion tomography*. The performance characteristics that are considered will be appropriate for all the types of tomography motions (linear, curvilinear, circular, elliptical, spiral, hypocycloidal).

Minimum Required Personnel Qualifications:

Level II (Intermediate Radiological Systems Surveyor)

Testing Periodicity:

All units: Annually, upon acceptance and after major repairs.

Instrumentation:

Tomographic Test Phantom kit that includes test devices for location of plane thickness of cut, exposure uniformity and beam path. Examples of commercial units: RMI tomographic test tool model 132 or Nuclear Associates tomographic phantom model 76-400.

References:

1. AAPM Report 31, *Standardized Methods for Measuring Diagnostic X-ray Exposures*. 1990.
2. Code of Federal Regulations, Title 10, Chapter 1, Parts 1000.55(c)(3)(f)(1), Part 1000.35(c)(3)(f)(1).
3. Code of Federal Regulations, Title 21, Chapter 1, Parts 1020.30, 1020.31, 1020.32; 3 May 1993 edition.
4. Curry, T.S. III, Dowdey J.E., Murry, R.C. Jr. *Christensen's Physics of Diagnostic Radiology*. Lea & Febiger, Philadelphia. 1990.
5. Gray, J.E., Winkler, N.T., Stears, J., Frank, E.D. *Quality Control in Diagnostic Imaging*; University Park Press, Baltimore, 1983
6. NCRP Report 99. *Quality Assurance for Diagnostic Imaging Equipment*, 1988
7. *Quality Assurance for Conventional Tomographic X-Ray Units*, HEW Publication (FDA) #80-8096, October 1979.